Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasónal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

UPPER HUMBOLDT RIVER BASIN

		STREAMFLOW FORECASTS						
		<------DRIER------- FUTURE CONDITIONS -----WETTER------>						
		Chance of Exceeding						
FORECAST POINT	FORECAST PERIOD	90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25 YR. (1000AF)
MARY'S RIVER nr Deeth	MAR-JUL	5.0	20.0	36	77	52	76	47
	APR-JUL	8.0	17.0	31	74	45	67	42
LAMOILLE CREEK nr Lamoille	MAR-JUL	6.0	16.0	24	79	32	43	31
	APR-JUL	4.0	15.0	22	75	30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0	43	73	74	121	59

For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

IDAHO WATER SUPPLY OUTLOOK REPORT

MARCH 1, 1992

SUMMARY

BELOW NORMAL AGAIN! FEBRUARY WAS THE THIRD CONSECUTIVE MONTH WITH LESS THAN AVERAGE PRECIPITATION AND SNOW ACCUMULATION ACROSS MOST OF THE STATE, WITH ONLY A FEW LOCALIZED EXCEPTIONS. A SERIES OF STORMS THAT MOVED ACROSS IDAHO IN MID-FEBRUARY PRODUCED THE ONLY SIGNIFICANT RAIN AND SNOW RECEIVED DURING THE MONTH. THE CENTRAL MOUNTAINS RECEIVED THE HIGHEST AMOUNTS, WITH SOME STATIONS RECEIVING THEIR NORMAL FEBRUARY TOTAL. ELSEWHERE, SNOWFALL WAS BELOW NORMAL. WITH ONLY A MONTH OR SO LEFT IN THE SNOW ACCUMULATION SEASON THERE IS LITTLE HOPE OF SIGNIFICANTLY IMPROVING SNOWPACK CONDITIONS BEFORE RUNOFF BEGINS. THE COMBINATION OF EXTREMELY LOW RESERVOIR STORAGE AND BELOW NORMAL SNOWPACKS MAY PROVIDE ONE OF THE LOWEST SEASONAL WATER SUPPLIES OF RECORD IN SOME CENTRAL AND SOUTHERN IDAHO BASINS. WATER USERS SHOULD KEEP IN CONTACT WITH THEIR LOCAL IRRIGATION DISTRICTS FOR MORE SPECIFIC INFORMATION.

SNOWPACK

Low snowfall, warm temperatures, and rain at the lower elevations have combined to reduce the snowpack percent of average for basins in the northern and southern extremes of the state. Although a storm period in mid-February raised snowpack percentages slightly in the upper Snake and central Idaho basins, nearly all areas south of the Clearwater basin have less than 75% of the normal March 1 amount. The low elevation snowpack is gone in most areas and the mid-elevation snowpack is beginning to melt due to unusually warm weather in late February and early March. Currently, snowpacks are in the 80 to 90% of average range in northern Idaho and the Henrys Fork basin, 60 to 70% in central Idaho and the upper Snake River basin, and 40 to 60% across southern and southeastern Idaho.

PRECIPITATION

Precipitation varied widely across Idaho in February. SNOTEL sites in the Panhandle region received 60 to 80% of the February normal while the Clearwater and Salmon basin SNOTEL sites only recorded 40 to 70% of normal. A major storm during the third week of February zeroed in on the central mountains bringing much needed rain and snow but added little to the southern quarter of the state. SNOTEL sites in the Weiser, Payette, Boise, Wood and Henrys Fork basins received near and above normal precipitation while the southern mountains reported only 40 to 70% of normal. Cumulative mountain precipitation since October 1 is still only 65 to 80% of average across the state except in northern Idaho, where conditions are slightly better.

RESERVOIRS

Reservoir storage is still a mixed bag in Idaho at this time. Some reservoirs in central and southern Idaho remain critically low, offering very little carryover storage to supplement the expected low runoff. Reservoirs in this category include Owyhee, the entire Boise System, Magic, Salmon Falls, Oakley, Blackfoot and Bear Lake. The Payette and upper Snake basin reservoirs are reporting near normal storage that will help buffer the effects of the expected below normal runoff. Reservoirs in northern Idaho are near to above normal, and supplies should be adequate to meet most uses in that portion of the state. NOTE: Dworshak reservoir storage was reported in error in the January and February issues of the Basin Outlook Report. January 1 useable storage was 2,583,000 acre-feet; February 1 was 2,572,000 acre-feet.

STREAMFLOW

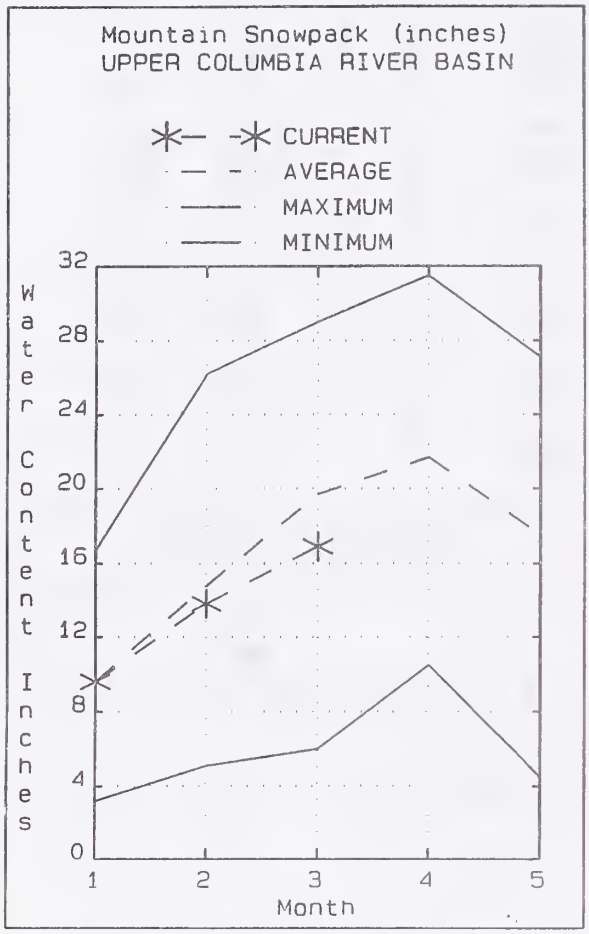
Warm temperatures and rain during the latter part of February caused streams to rise somewhat in low and mid-elevation basins across the state. February streamflows remained below average nearly statewide, a continuing sign of the cumulative effects of dry conditions. With snowpacks below to well below normal throughout Idaho and the upper Snake and only a month or so left in the snow accumulation season, summer streamflow volumes will be below average again this year unless a SIGNIFICANT change in precipitation patterns occurs. Forecasts for northern Idaho streams now range from 75 to 83% of average, central and southern Idaho streams are only expected to produce 40 to 70% of normal flows, and the upper Snake basins range from 55 to 78% of average.

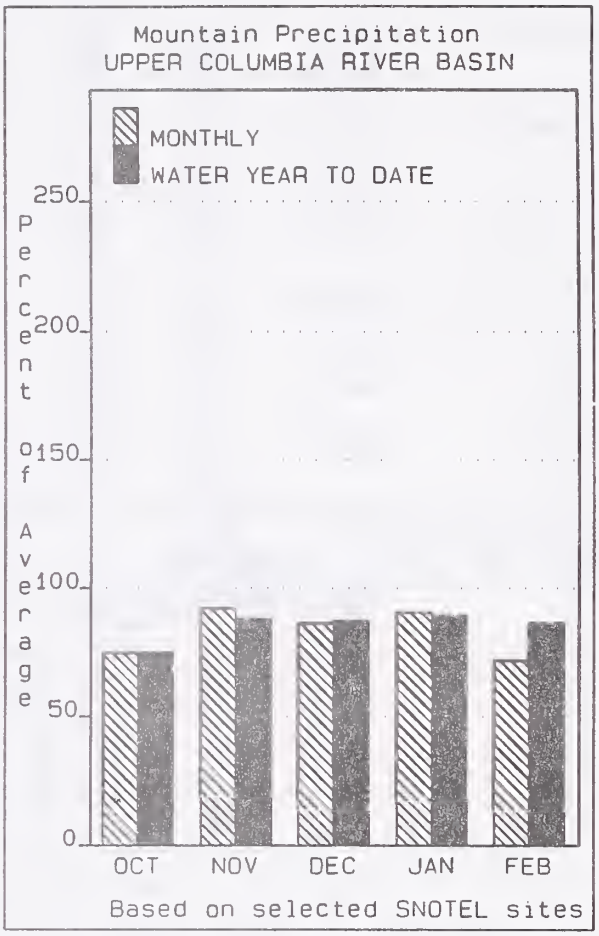
RECREATIONAL OUTLOOK

Warm temperatures in late February and early March combined with low snowpack levels will lead to an earlier than normal runoff season with lower peak flows in central, southern, and eastern Idaho. Slightly below normal snowpacks in northern Idaho still promise excellent whitewater boating on the Lochsa, Selway, Moyie, and St. Joe rivers. Near average carryover storage in Cascade and Deadwood reservoirs should provide excellent flows for Payette river users later this summer. Boaters should plan for an early season on Idaho's southwest desert rivers. The Owyhee River may have already crested, as rain and warm temperatures melted all but the highest mountain snowpacks and brought the Owyhee flow at Rome to 1200 cfs on February 23. Additional snow accumulation during the remainder of the winter and the timing of the spring runoff will determine actual flow conditions on Idaho's rivers.

Upper Columbia River Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Unseasonably warm temperatures during February brought rain to the valleys and snow to the high country. Low elevation snowpacks began to melt during the last week of February due to the rain and warm temperatures, causing most streams in the area to rise. The snowpack in this region, like the rest of the state, is better in the higher elevations than in the lower elevation areas. Snowpacks in the higher elevation drainages are in the 80-90% of average range, while low elevation snowpacks range from only 40-60% of average. Streamflow forecasts call for 80-85% of normal flows for most streams in northern Idaho. Water supplies should be adequate in this region given the near normal reservoir storage and expected streamflows.

UPPER COLUMBIA RIVER BASIN
Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
TENAI at Leonia (1,2)	APR-SEP	5650	6830	7370	89	7910	9090	8275
	APR-JUL	4910	5940	6410	89	6880	7910	7199
	APR-JUN	3870	4690	5070	89	5450	6270	5701
RK FK at Whitehorse Rpds (1,2)	APR-SEP	6540	8710	9690	75	10700	12800	12910
	APR-JUL	6020	7990	8880	76	9770	11700	11730
	APR-JUN	5200	6880	7640	76	8400	10100	10050
D OREILLE LAKE inflow (1,2)	APR-SEP	7440	9750	10800	75	11900	14200	14370
	APR-JUL	7030	9140	10100	77	11100	13200	13150
	APR-JUN	5870	7860	8770	77	9680	11700	11390
EST nr Priest River (1,2)	APR-SEP	480	640	710	82	780	940	868
	APR-JUL	455	600	670	82	740	885	814
UR D'ALENE at Enaville (1)	APR-SEP	315	580	700	87	820	1090	809
	APR-JUL	300	550	665	86	780	1030	769
JOE at Calder	APR-SEP	815	925	1000	81	1070	1180	1237
	APR-JUL	775	880	950	81	1020	1120	1169
KANE nr Post Falls (1,2)	APR-SEP	1280	1800	2220	82	2640	3160	2720
	APR-JUL	855	1750	2150	82	2550	3440	2627

UPPER COLUMBIA RIVER BASIN
Reservoir Storage (1000 AF) - End of February

ervoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GRY HORSE	3451.0	1894.0	2092.0	2205.0
THEAD LAKE	1791.0	597.2	932.7	881.0
D OREILLE	1561.2	655.1	682.4	831.8
ON RAPIDS	335.0	322.8	306.7	298.1
UR D'ALENE	291.2	209.2	303.2	220.9
EST LAKE	97.7	30.7	31.0	34.4

UPPER COLUMBIA RIVER BASIN
Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	44	74	86
Moyie River	3	62	78
Clark Fork River	68	95	81
Pend Oreille River	101	83	83
Priest River	4	95	81
Rathdrum Creek	4	109	58
Hayden Lake	2	102	47
Coeur d'Alene River	8	103	85
St. Joe River	3	95	86
Spokane River	17	101	78
Palouse River	2	84	42

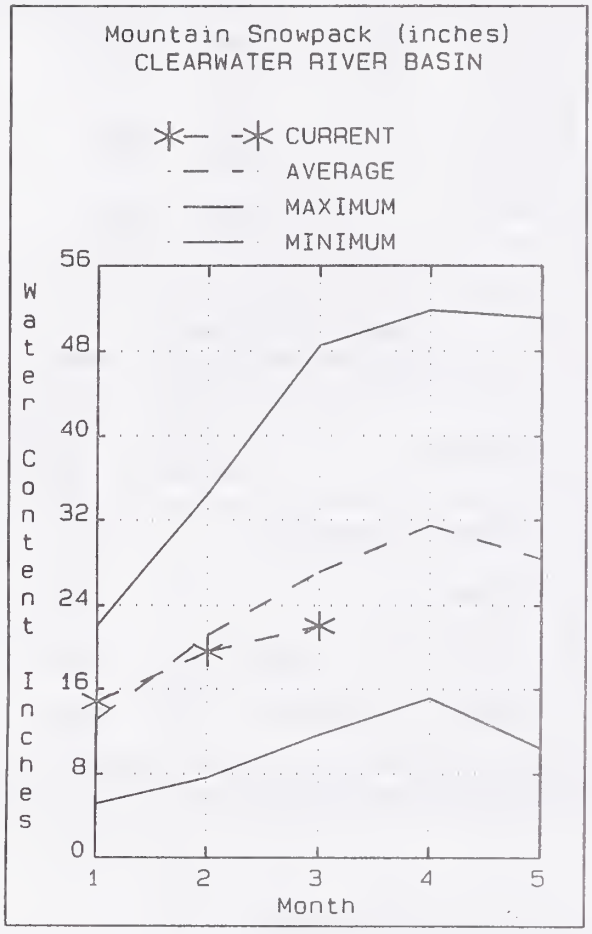
90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

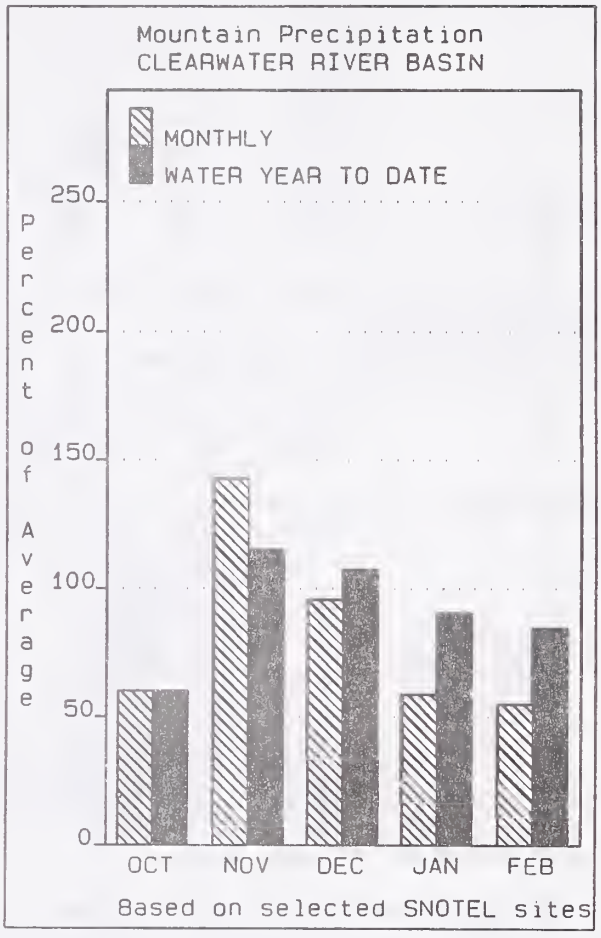
average is computed for the 1961-1990 base period.

· The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
· The value is natural flow - actual flow may be affected by upstream water management.

Clearwater River Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Mountain precipitation was only about half of normal in the Clearwater basin during February and currently stands at 85% of average for the water year. Due to the low precipitation in February, snowpack percentages have decreased to 77% of average for the basin. Dworshak Reservoir storage is currently 80% of useable capacity. Streamflow forecasts for the Clearwater basin call for below average flows for the April-September period. Warm temperatures in late February and early March caused lower elevation snowpacks to start melting, two to four weeks earlier than normal. If the current weather trends continue, river floaters can expect peak flows and stream recession to occur earlier than normal this year.

CLEARWATER RIVER BASIN

Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DWORSHAK RESERVOIR inflow (1)	APR-SEP	1200	1880	2190	76	2500	3180	2875
	APR-JUL	1120	1760	2050	76	2340	2980	2700
CLEARWATER at Orofino (1)	APR-SEP	2090	3220	3730	75	4240	5370	4976
	APR-JUL	1960	3030	3520	75	4010	5080	4718
CLEARWATER at Spalding (1,2)	APR-SEP	3500	5250	6040	75	6830	8580	8052
	APR-JUL	3340	4990	5740	75	6490	8140	7618

CLEARWATER RIVER BASIN

Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3467.8	2791.0	2386.9	2084.1

CLEARWATER RIVER BASIN

Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	12	85	80
Lochsa River	4	86	73
Selway River	6	90	77
Clearwater Basin Total	20	86	78

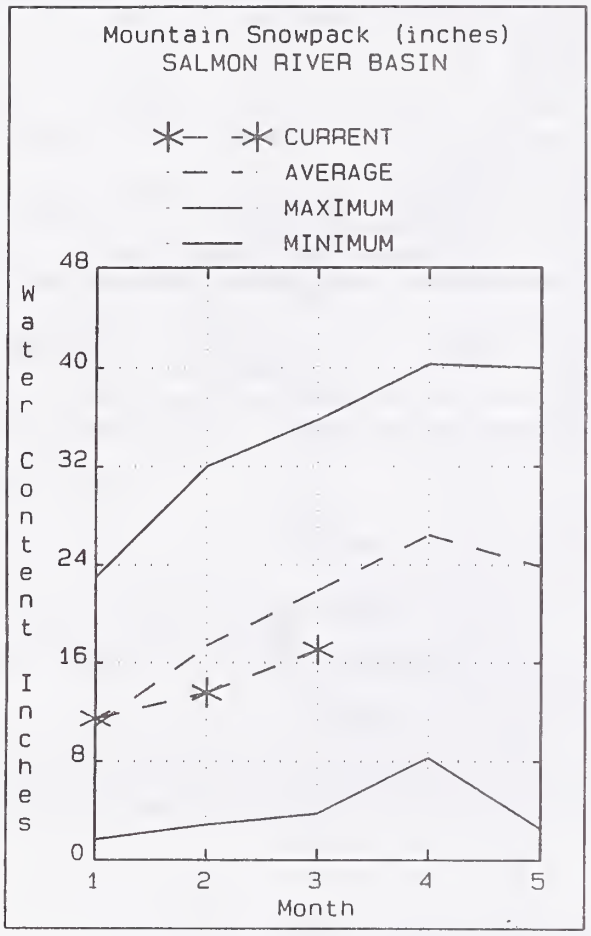
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

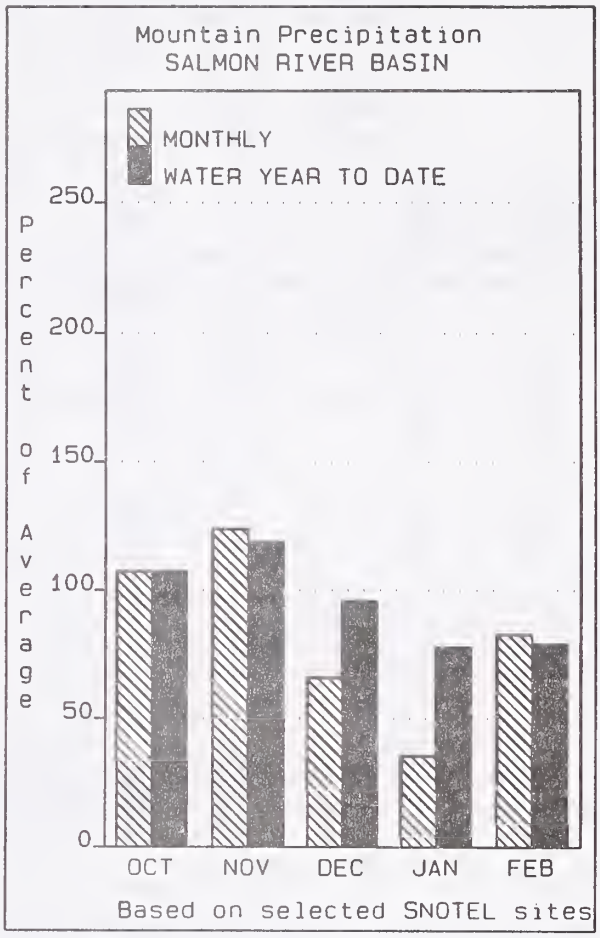
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Salmon River Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Mountain precipitation during February was an improvement over the previous two months, but was still only 83% of normal for the overall basin. Near normal precipitation fell in the western portion of the basin while much below normal was reported in the east. Snowpack percentages decreased slightly during February and currently range from 71% of average for the Salmon River above Salmon to 84% of average for the Lemhi River. Streamflow forecasts call for below normal runoff for the Salmon River once again this year. Due to the above normal temperatures in late February and early March, snowmelt has begun 2-4 weeks earlier than normal this year. If the warm temperatures continue, whitewater boaters can expect peak flows to occur early this year, along with an early return to low flow conditions.

SALMON RIVER BASIN

Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-SEP	330	605	730	72	855	1130	1019
	APR-JUL	285	520	625	72	730	965	869
SALMON at White Bird (1)	APR-SEP	2940	4280	4890	74	5500	6840	6602
	APR-JUL	2670	3880	4430	74	4980	6190	5956

SALMON RIVER BASIN

Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

SALMON RIVER BASIN

Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	9	143	71
Lemhi River	9	144	84
Middle Fork Salmon River	3	167	76
South Fork Salmon River	3	161	81
Little Salmon River	4	183	76
Salmon Basin Total	29	145	78

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WEISER, PAYETTE, AND BOISE RIVER BASIN
Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
WEISER nr Weiser (1)	APR-SEP	4.0	139	210	51	280	435	415
	APR-JUL	4.0	130	196	51	260	410	386
SF PAYETTE at Lowman	APR-SEP	300	345	375	77	405	450	488
	APR-JUL	265	305	335	78	365	405	432
DEADWOOD RESERVOIR inflow (1)	APR-JUL	67	86	99	73	112	131	136
NF PAYETTE at Cascade (1,2)	APR-SEP	265	360	400	75	440	535	533
	APR-JUL	250	335	375	75	415	500	498
NF PAYETTE nr Banks (2)	APR-SEP	345	450	520	75	590	695	690
	APR-JUL	320	420	485	75	550	650	648
PAYETTE nr Horseshoe Bend (1,2)	APR-SEP	760	1100	1260	72	1420	1760	1755
	APR-JUL	695	1020	1160	72	1300	1620	1618
BOISE nr Twin Springs (1)	APR-SEP	275	365	405	59	445	535	686
	APR-JUL	235	330	370	59	410	510	631
SF BOISE at Anderson Rnch Dm (1,2)	APR-SEP	109	215	265	46	315	420	582
	APR-JUL	136	200	245	45	290	355	544
BOISE nr Boise (1,2)	APR-SEP	390	640	755	49	870	1120	1535
	APR-JUL	270	575	680	48	785	1080	1421
	APR-JUN	360	530	610	48	690	860	1264

WEISER, PAYETTE, AND BOISE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.3	4.8	3.5	6.8
CASCADE	703.2	422.7	451.8	393.8
DEADWOOD	162.0	57.6	85.8	84.5
ANDERSON RANCH	464.2	74.1	172.7	282.1
ARROWROCK	286.6	146.8	237.0	234.8
LUCKY PEAK	307.0	103.4	63.0	122.5
LAKE LOWELL (DEER FLAT)	177.0	72.6	66.4	140.6

WEISER, PAYETTE, AND BOISE RIVER BASIN
Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	2	155	66
Weiser River	5	157	68
North Fork Payette	8	162	78
South Fork Payette	5	151	67
Payette Basin Total	14	154	72
Middle & North Fork Boise	7	125	57
South Fork Boise River	9	159	54
Moores Creek	5	94	45
Boise Basin Total	17	126	51
Canyon Creek	2	0	20

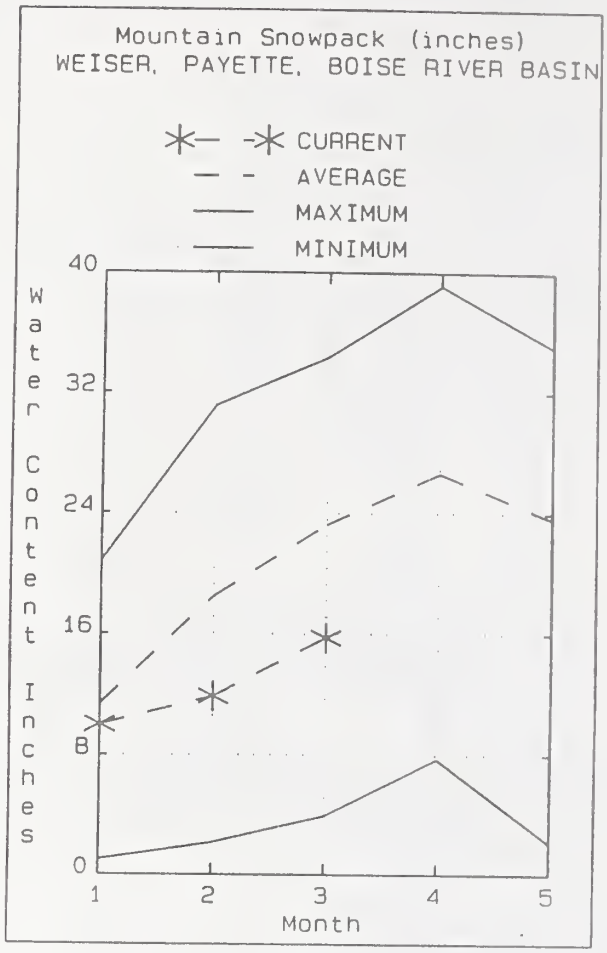
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

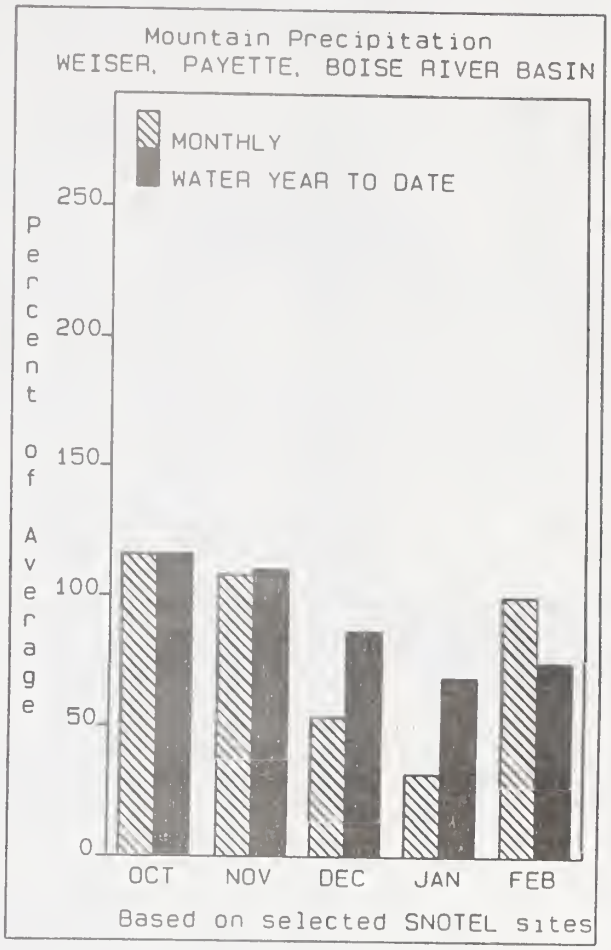
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Weiser, Payette, and Boise River Basin

March 1, 1992



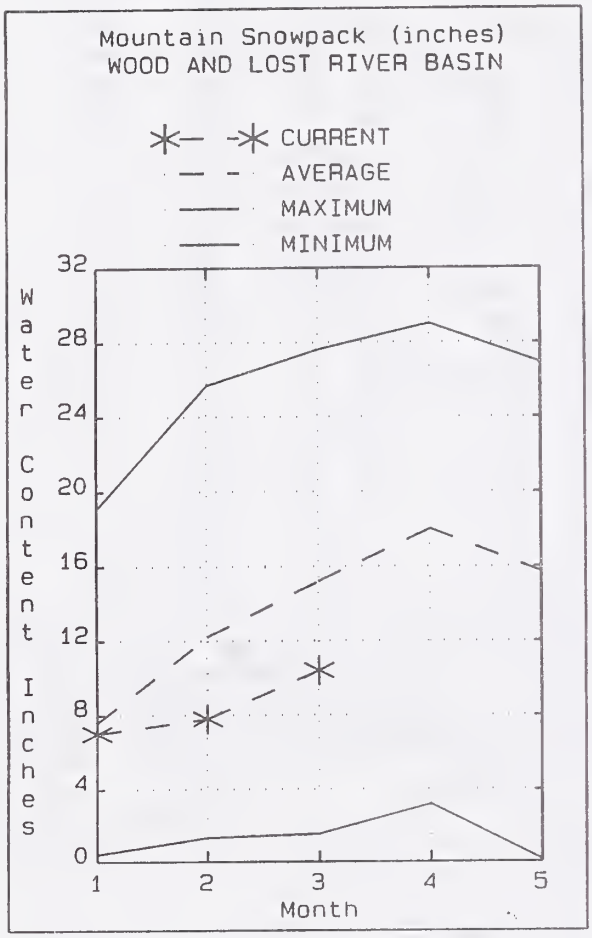


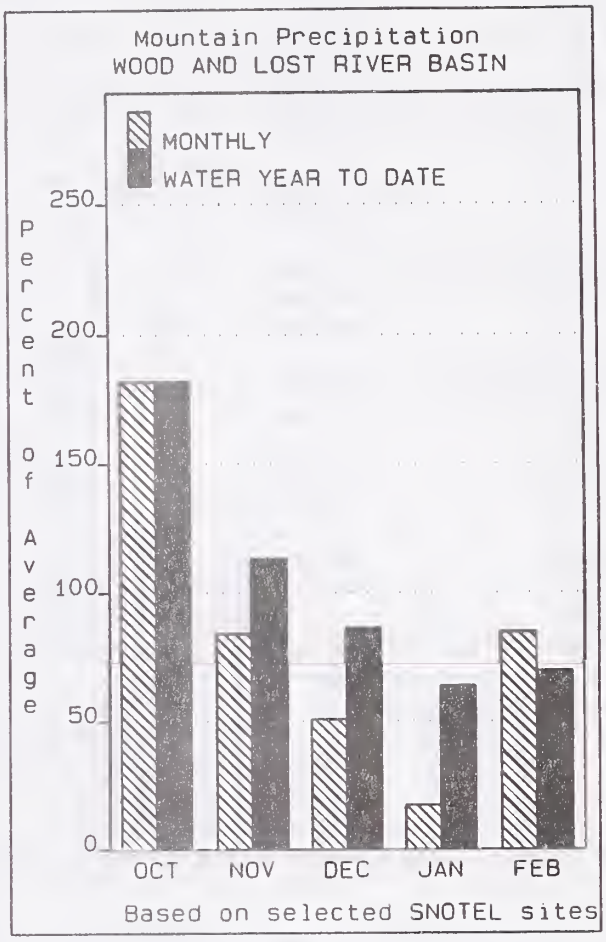
WATER SUPPLY OUTLOOK

Near normal precipitation fell during February over most of the west central mountains, the only area in the state to receive its normal complement for the month. Warm temperatures associated with the late February storm period brought rain to the valleys and raised the snowline in the mountains. Low elevation snowpacks are currently melting and are far below normal for this time of year. As a result, the Boise basin snowpack remains essentially the same as last month -- only 51% of average, in spite of the improvement at the higher elevations. Streamflows during February were up slightly from the previous month, but are still below average. The forecast for the Boise River near Boise is 49% of normal while the Payette near Horseshoe Bend is forecast at 72% of normal. Water supplies in the Payette basin should be adequate this summer due to good carryover storage in Cascade Reservoir. With the critically low reservoir storage in the Boise system (only 31% of capacity) and well below normal runoff expected, severe water shortages are expected for the Boise basin. Water users should contact their local irrigation districts for more specific information.

Big Wood, Little Wood, Big Lost, and Little Lost River Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Mountain precipitation during February was an improvement over the last two months, but was still only 85% of normal. Water year to date precipitation stands at 70% of normal for the basin. The snowpack is double or triple that of last year at this time, but is still well below normal in most areas. Magic Reservoir is at a critically low storage level of only 14% of capacity (27% of average). Streamflow forecasts are also extremely low with only 28% of average expected for Magic Reservoir inflow. On the Big Lost drainage, Mackay Reservoir storage is slightly better at 58% of capacity (79% of average). Inflow to Mackay Reservoir is forecast at 69% of normal. The combination of an almost empty reservoir and very low runoff projections could yield one of the lowest water supplies ever in the Wood River valley. Water users should prepare for critical water shortages and should stay in contact with their local irrigation district.

BIG WOOD, LITTLE WOOD, BIG LOST, AND LITTLE LOST RIVER BASIN
Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BIG WOOD nr Bellevue	APR-SEP	12.0	58	89	45	120	166	197
	APR-JUL	9.0	52	81	44	110	153	183
BIG WOOD bl Magic Dam (2)	APR-SEP	37	39	86	28	134	285	309
	APR-JUL	3.0	37	82	28	127	194	294
LITTLE WOOD nr Carey	APR-SEP	31	48	61	62	74	91	99
	APR-JUL	27	45	57	62	69	87	92
BIG LOST at Howell Ranch nr Chilly	APR-SEP	101	128	147	71	166	193	206
	APR-JUL	88	113	130	72	147	172	181
	APR-JUN	73	91	104	74	117	135	141
BIG LOST bl Mackay Reservoir (2)	APR-SEP	75	105	125	69	145	175	182
	APR-JUL	60	86	104	69	122	149	150
LITTLE LOST bl Wet Ck	APR-SEP	16.0	23	27	69	31	38	39
	APR-JUL	14.0	19.0	22	71	25	30	31
LITTLE LOST nr Howe	APR-SEP	25	30	33	77	36	41	43
	APR-JUL	19.0	23	25	76	27	31	33

WOOD AND LOST RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	27.7	22.5	102.4
LITTLE WOOD	30.0	15.2	11.6	17.6
CAREY VALLEY		NO REPORT		
MACKAY	44.5	25.8	22.8	32.6

WOOD AND LOST RIVER BASIN
Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Magic	8	196	67
Camas Creek	5	219	40
Big Wood Basin Total	13	200	59
Little Wood River	4	444	76
Fish Creek	3	569	65
Big Lost River	7	341	75
Little Lost River	4	178	81

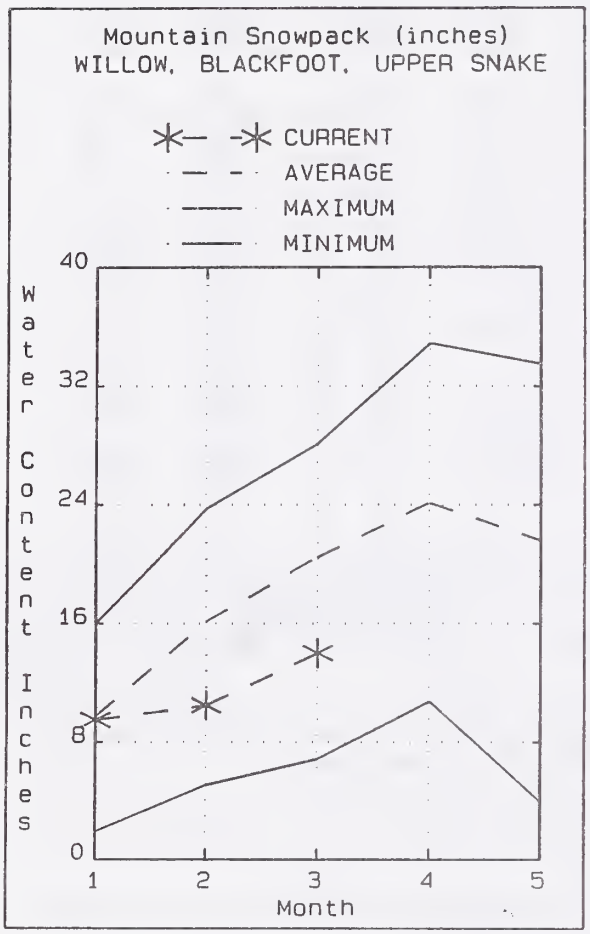
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

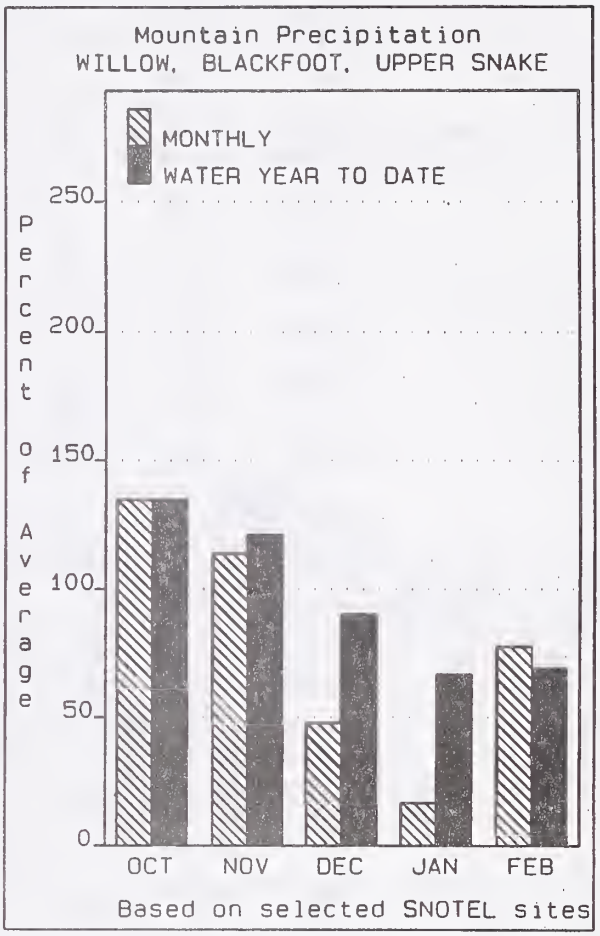
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Willow Creek, Blackfoot, Upper Snake, and Portneuf River Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Mountain precipitation in February was 78% of normal for these basins, an improvement over the last two months. An isolated storm event in the headwaters of the Henrys Fork deposited almost eight inches of snow water equivalent at White Elephant SNOTEL between February 11-23. This has improved the snowpack in the Henrys Fork basin over last month, but snowpacks remain well below normal elsewhere. The Snake above Palisades reports 65% of average while the Portneuf reports a meager 48%. Reservoir storage for nine major reservoirs in the basin is the best in southern Idaho, with 107% of average and 75% of capacity. Streamflow forecasts call for below normal flows, ranging from 55% of average for the Portneuf at Topaz to 78% of average for the Henrys Fork near Ashton. If the dry and warm trend continues, water supplies could be tight this summer in the Snake River basin. Water users should monitor the situation closely, and should stay in touch with their local irrigation district for more specific information.

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF RIVER BASIN
Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
HENRYS FORK nr Ashton (2)	APR-SEP	495	540	570	78	600	645	730
	APR-JUL	370	405	425	78	445	480	544
HENRYS FORK nr Rexburg (2)	APR-SEP	825	995	1110	72	1230	1400	1540
	APR-JUL	630	765	855	70	945	1080	1219
FALLS nr Squirrel (1,2)	APR-JUL	205	255	275	76	295	345	364
TETON ab S Leigh Ck nr Driggs	APR-SEP	98	114	125	63	136	152	199
	APR-JUL	78	90	98	64	106	118	153
TETON nr St. Anthony	APR-SEP	225	265	290	62	315	360	471
	APR-JUL	186	220	240	63	260	295	380
SNAKE nr Moran (1,2)	APR-SEP	400	475	530	61	585	650	869
PALISADES RESERVOIR inflow (1,2)	APR-SEP	1390	1970	2250	60	2530	3120	3763
SNAKE nr Heise (2)	APR-SEP	1500	2010	2410	60	2810	3360	4049
	APR-JUL	1190	1690	2030	59	2370	2870	3451
SNAKE nr Blackfoot (1,2)	APR-SEP	1520	2680	3200	58	3720	4880	5482
	APR-JUL	1190	2130	2550	57	2970	3910	4444
PORTNEUF at Topaz	MAR-SEP	37	51	60	56	70	83	107
	MAR-JUL	28	39	47	55	55	66	86

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ISLAND PARK	127.6	101.6	89.9	110.1
GRASSY LAKE	15.2	12.3	13.2	10.9
JACKSON LAKE	824.7	638.8	546.4	535.9
PALISADES	1357.0	905.7	464.0	1028.0
AMERICAN FALLS	1700.0	1291.2	1213.5	1277.2
BROWNLEE	975.3	936.2	775.9	531.0
BLACKFOOT	348.7	110.2	92.5	242.1
HENRYS LAKE	90.4	83.0	82.2	79.4
RIRIE	96.5	49.0	46.6	51.3

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF
Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Camas-Beaver Creeks	4	189	84
Henrys Fork River	12	133	85
Teton River	8	102	70
Snake above Jackson Lake	10	108	71
Pacific Creek	3	99	67
Gros Ventre River	4	79	58
Hoback River	6	89	58
Greys River	6	88	54
Salt River	6	97	66
Snake above Palisades	34	98	65
Willow Creek	8	83	60
Blackfoot River	5	88	58
Portneuf River	10	69	48
Toponce Creek	3	62	44
Snake abv American Falls	55	91	61

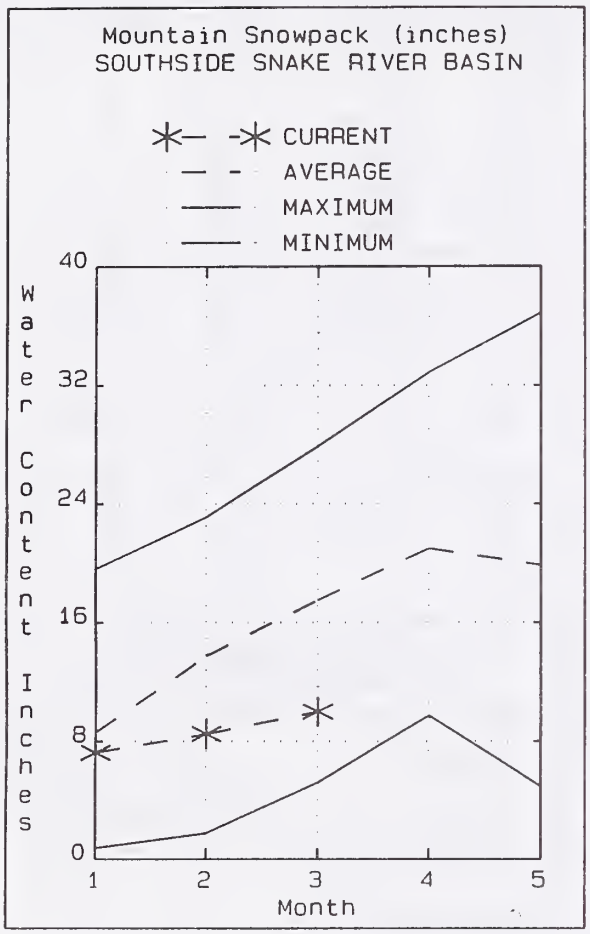
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

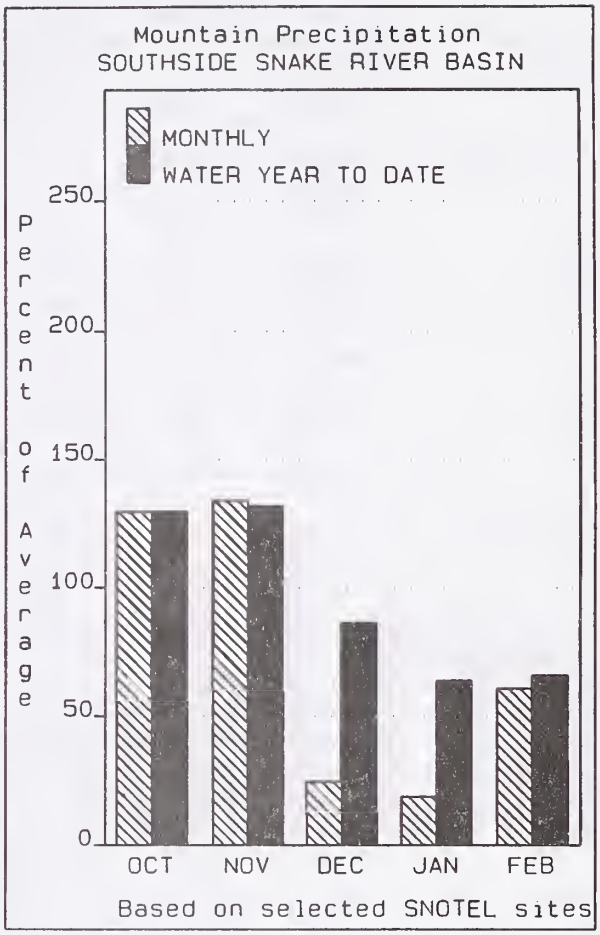
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Southside Snake River Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Precipitation missed the southern part of Idaho again for the third consecutive month. February mountain precipitation was only 61% of normal and stands at 66% of normal for the water year. Snowpack now ranges from a high of 69% of average on the Raft River to a low of 40% on the Owyhee basin. Oakley, Salmon Falls, and Owyhee reservoirs currently hold less than 20% of capacity. Streamflow forecasts for Owyhee Reservoir inflow calls for only 46% of normal for the March-July period. Warm temperatures and rainfall in February brought the Owyhee River near Rome to 1200 cfs. This may have been the peak streamflow for the season if the dry conditions continue. With reservoir storage and streamflow forecasts at much below normal levels, water will be in short supply this season. Water users should stay in touch with their local irrigation districts for more specific information.

SOUTHSIDE SNAKE RIVER BASIN
Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
OAKLEY RESERVOIR inflow	MAR-SEP	5.6	13.6	19.0	51	24	32	37
	MAR-JUL	4.5	11.9	17.0	50	22	30	34
SALMON FALLS CK nr San Jacinto	MAR-SEP	15.0	38	54	56	70	92	96
	MAR-JUL	14.0	36	51	56	66	89	91
	MAR-JUN	14.0	34	48	56	62	82	86
BRUNEAU nr Hot Spring	MAR-SEP	45	92	123	50	155	200	246
	MAR-JUL	45	88	118	50	148	192	235
OWYHEE nr Gold Ck (2)	MAR-JUL	0.5	9.6	15.8	45	22	31	35
OWYHEE nr Owyhee (2)	APR-JUL	1.0	23	39	45	56	80	86
OWYHEE nr Rome	MAR-JUL	5.0	112	220	40	330	485	545
OWYHEE RESERVOIR inflow (1,2)	APR-SEP	4.0	65	180	43	295	550	418
	MAR-JUL	6.0	143	260	46	375	635	567

SOUTHSIDE SNAKE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	77.4	11.2	10.8	29.9
SALMON FALLS	182.6	17.6	18.0	53.9
OWYHEE	715.0	146.5	251.0	512.0

SOUTHSIDE SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	109	69
Goose-Trapper Creeks	5	105	57
Salmon Falls Creek	7	82	56
Bruneau River	9	84	50
Owyhee Basin Total	21	81	40

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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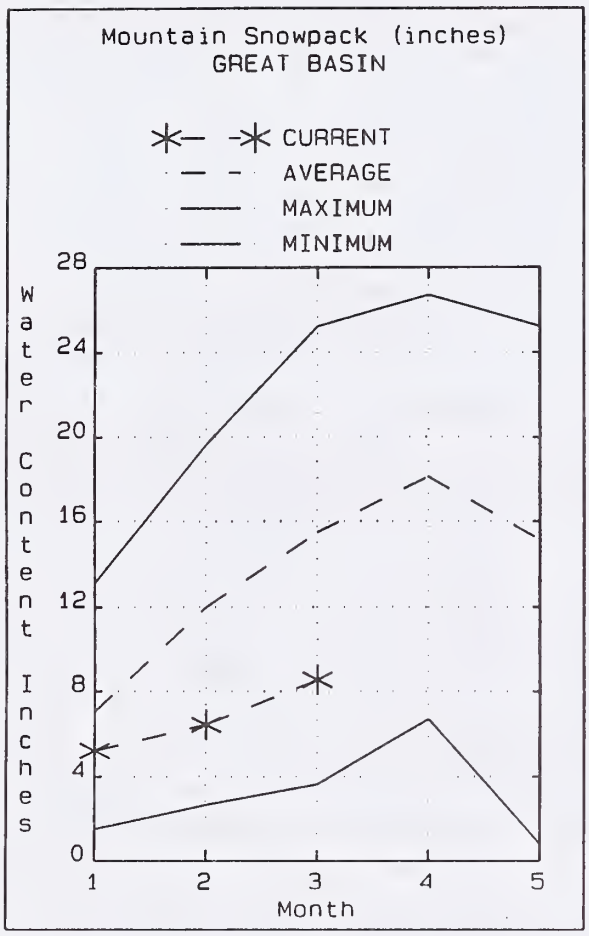
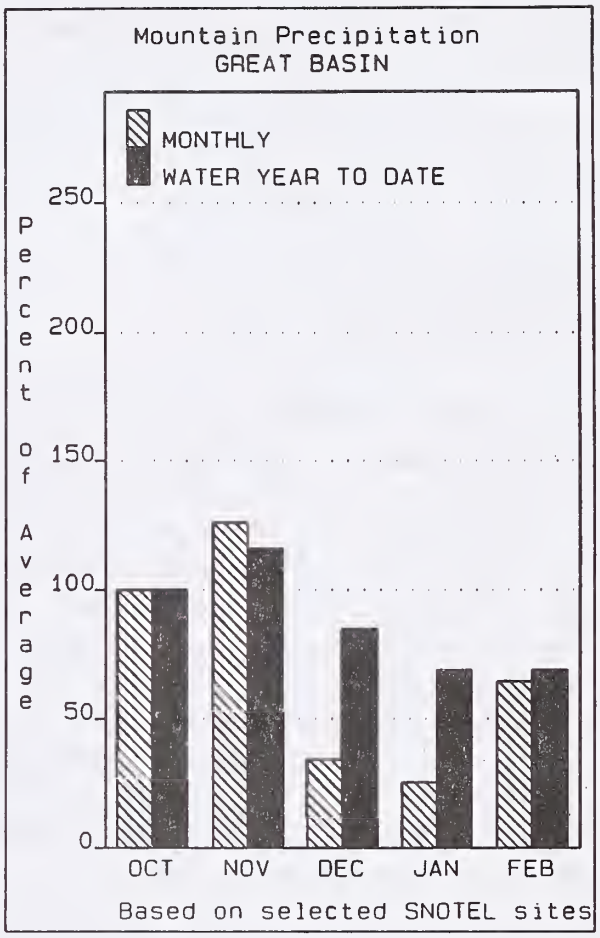
Great Basin

March 1, 1992





WATER SUPPLY OUTLOOK

Mountain precipitation during February was nearly non-existent for another month in southeastern Idaho. Precipitation has been well below normal for the past three months, and February produced only 65% of normal. Water year to date total precipitation is only 69% of normal. Snowpack percentages also decreased during the past month and now range from 49% of average for the Malad River to 61% for the Bear River above Harer. Bear Lake and Montpelier Creek reservoirs are both less than 35% of capacity which is only half of their average storage for March 1. Streamflow forecasts call for much below average runoff for the April-September period. Water users should prepare for CRITICALLY SHORT water supplies this summer and should stay in contact with their local irrigation district for more specific information.

GREAT BASIN

Streamflow Forecasts - March 1, 1992

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
BEAR RIVER near Harer	APR-SEP	27	136	210	61	285	395	345
MONTPELIER CK nr Montpelier	APR-SEP	0.9	5.0	7.8	56	10.6	14.7	13.9
CUB RIVER near Preston	APR-SEP			28	54			52
	APR-JUL	8.0	19.0	26	56	33	44	47

GREAT BASIN

Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	480.1	503.9	992.5
MONTPELIER CREEK	4.0	1.0	0.6	1.7

GREAT BASIN

Watershed Snowpack Analysis - March 1, 1992

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Bear River (above Harer)	12	96	61
Montpelier Creek	4	85	53
Mink Creek	5	73	51
Cub River	4	79	52
Malad River	6	98	49

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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Basin Outlook Reports
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Cooperative Snow Surveys

For more water supply and resource management information, contact:

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

Basin Outlook Reports

March 1, 1992

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In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

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